APPENDIX

Just Look Up – How New Jersey's Legislature is Responding to the Very Real Threat of Climate Change

Senator Bob Smith, esq. represents the citizens of New Jersey's 17th Legislative District. Having served in the State Legislature since 1986, currently as chair of the Senate Environment & Energy Committee, Bob Smith is considered one of New Jersey's leading environmental lawmakers.

Joseph Gurrentz, Ph.D. is an experienced scientist and educator with a Ph.D. in chemistry on novel semiconductor materials for solar power generation and energy storage. Joseph (Joey) is an Eagleton Science & Politics Fellow and co-aide to Senate Environment and Energy Committee.

Climate Change Impacts to New Jersey

Often, when we read about climate change, we are inundated with messages about its catastrophic global impacts, like melting glaciers, ocean acidification, and more frequent and intense storms; however, too little is shared on specific regional impacts and what has been done to combat them.

With our 130 miles of coastline and many low-lying inland waterways, New Jersey is particularly vulnerable to sea level rise, flooding events, and saltwater intrusion. As highlighted in the New Jersey Department of Environmental Protection's 2020 Scientific Report on Climate

Change, rising temperatures will increase droughts, strain the State's freshwater supply, and decrease the productivity of important food crops that make NJ the "Garden State".[1]

Each of these climate impacts can have broad ramifications on our economy, the natural environment, and our way of life. Anyone who was impacted by Hurricane Sandy or Ida, for example, knows too well how high winds and heavy precipitation can result in road closures, sodden homes, power outages, and coastline damage. What's less evident is how much weather and climate disasters impact our economy, decreasing property values and requiring costly, tax-payer funded remediation efforts. Unfortunately, the frequency of billion-dollar weather and climate disasters are increasing.

In a recent report, the Union of Concerned Scientists found that New Jersey will lead the nation in the number of commercial properties at risk of chronic inundation in 2045, and will be second only to Florida in the number of residential properties at risk.[2] The U.S. Army Corps of Engineers projects that New Jersey's back bay communities could face a combined average of $1.8 billion a year in damages if additional steps aren't taken to mitigate and respond to climate impacts.[3] Other recent research has found that sea level rise-driven changes in tidal flooding have already reduced home values in New Jersey by an estimated $4.5 billion.[4] Voila: the true cost of doing nothing.

Aggressive action is necessary to reduce our dependence on fossil fuels to help avoid the worst effects of climate change. While some may argue that climate change is too big and too expensive an issue for any one state to meaningfully address, I believe that we have a moral obligation to do so. I maintain that we can get to net-zero greenhouse gas emissions, and we can do so feasibly and affordably. In fact, Princeton University's Net-Zero America study shows that the nation will return value on coordinated climate action.[5] At the end of the day, if New Jersey does not lead the way, who will?

Despite our State's small geographic size and relatively small contribution to total global emissions of greenhouse gases, our Legislature's actions - and omissions - have ramifications that extend beyond the State's borders. Our climate policies signal to carbon-intensive industry sectors, surrounding states, and the federal government that they need to prepare for a decarbonized future.

Powering the Future with Carbon-Free Electricity

Since the passage of the "Global Warming Response Act" in 2007, New Jersey has successfully reduced greenhouse gas emissions by 20% below 2006 levels.[6] This is a huge win, but a coordinated, economy-wide transformation will be required to achieve our more ambitious goals: 100% carbon-free electricity and an 80% reduction in carbon emissions by 2050.

To achieve this transformation, the Legislature is working from a variety of angles. Some of the Legislature's actions include decarbonizing the State's electrical grid, transitioning to

electric vehicles, and guiding market forces to incentivize the use of products that utilize innovative, low-carbon manufacturing processes.

On the energy front, New Jersey's Renewable Portfolio Standard (RPS) is one of the most aggressive in the nation. The RPS, established in 1999 and updated in the clean energy act of 2018, requires New Jersey electricity suppliers to procure 22.5% of electricity sold in-state from qualified renewable energy resources. This requirement increases to 35% in 2025, and 50% by 2030. On top of that, New Jersey's Energy Master Plan calls for 100 % clean energy by 2050. To meet these goals, the Legislature has developed several incentives programs to spur the deployment of clean energy resources.

The Solar Renewable Energy Certificate (SREC) program, for example, has accelerated the deployment of solar energy installations. Solar now accounts for more than five percent of New Jersey's total retail electricity consumption, and we are aiming to double that by 2026. This past summer, the Legislature authorized the Successor Solar Incentive (SuSI) program, which includes a competitive solicitation process for at least 1,500 MW of large, grid-scale solar facilities. The Legislature also established the Dual-Use Solar Energy Pilot Program to authorize co-production of solar energy and crops on unpreserved farmland.

The State has also sought to harness the incredible power of our offshore wind by approving over 3,700 MW of new offshore wind energy projects, enough to power roughly 1.15 million homes. With construction having recently begun on the massive wind port in Salem County and the Paulsboro Marine Terminal in Gloucester Country, our offshore wind capacity is only expected to increase, eventually surpassing the State's goal of 7,500 MW by 2035 while creating high-paying jobs and stimulating the local economy.

Finally, we can't ignore the importance of nuclear power plants in facilitating the decarbonization of the State's electrical grid. Three nuclear power facilities provide New Jersey with approximately 42% of our electricity, and roughly 90 percent of our total carbon-free energy.[7] The continued operation of these plants is critical if we are going to keep our carbon footprint low while transitioning to a more reliable, renewable energy grid. In 2018, the Legislature established a zero emissions credit (ZEC) program to compensate the State's nuclear energy facilities for the full value of the carbon-free electricity they provide. Additionally, the State should explore the feasibility of incorporating next generation, small modular reactors to increase resilience and the diversity our clean energy portfolio.

So far, about 50% of New Jersey's in-state electricity production comes from emissions-free sources. Thanks to the State's aggressive climate policies, that number is primed to increase. While this is a big accomplishment, there is still much more to be done.

Cleaning up the Transportation Sector

The single largest source of greenhouse gas emissions in the State is the transportation sector, which accounts for 40 percent of total statewide emissions. The Legislature has taken

several meaningful steps towards decreasing transportation emissions; including enacting the extremely successful light-duty electric vehicle incentives program, requiring electric vehicle charging stations in new construction, and using RGGI proceeds to electrify public transportation and build out the State's EV charging infrastructure. Still, more aggressive action is needed if we are going to clean up our transportation sector in a substantial, lasting way.

One meaningful way in which the Legislature can decrease transportation emissions is through the electrification of public transit. This is a public health and an environmental justice priority. Urban centers are often the most dependent on public transport while being disproportionately impacted by the negative health effects of toxic air pollution from combustion engines.

Unfortunately, air pollution is endemic across the entire state. To address the broader issue of transportation emissions, the legislature has its eyes set on the lowest hanging fruit: New Jersey's medium- and heavy-duty vehicles. These account for only 4 percent of vehicles on the road while generating approximately 25 percent of transportation greenhouse gas emissions.[8] I applaud the Department of Environmental Protection for implementing the Advanced Clean Trucks Rule, which would increase the proportion of electric medium- and heavy-duty vehicles sold in the state, but I will continue to advocate for additional legislation that would further incentivize the conversion of commercial automobile fleets to zero emissions vehicles.

What Comes Next

Moving forward, we need to shift the way the State conducts business by considering more seriously the costs associated with climate change impacts. If the State intends to meaningfully address climate change, we must "practice what we preach." We cannot continue to tout our commitment to environmental protection while simultaneously perpetuating, and profiting off of, the actions of climate polluting industries.

To this end, last session, I introduced S330, which would prohibit the State pension fund (valued at over $76 billion) from investing in 200 of the largest publicly traded fossil fuel companies. I also cosponsored SCR18, which would prohibit the construction of new fossil fuel power plants, thus requiring retiring fossil fuel plants to be replaced with renewable energy generation. For now at least, renewables remain our least expensive and least polluting energy resources, so it makes environmental and fiscal sense to support them.

Of course, these policies don't constitute an exhaustive list. We are continuing to work on measures to mitigate the effects of climate change and aid the transition to a zero-emission future. These include programs that would incentivize the deployment of energy storage systems, streamline the interconnection of renewables to the electricity grid, establish an electric school bus fleet conversion grant program, and more. This session, the Senate Environment and Energy Committee will take testimony at each meeting from interested stakeholders on what more the State can do.

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Climate change may be the single greatest threat we face this generation. Not "looking up" and "sit back and reassess" is not acceptable in New Jersey.

For more stunning climate change information and inspiration, see:

- **New York Times Article: *A Hotter Future Is Certain, Climate Panel Warns. But How Hot Is Up to Us*** – **https://www.nytimes.com/2021/08/09/climate/climate-change-report-ipcc-un.html**
- **New Jersey Protecting Against Climate Threats (PACT) rules** – Pursuant to Executive Order 100, the DEP is reforming its regulations to help reduce greenhouse gas emissions while making the built and natural environment more resilient to the impacts of climate change: **https://www.nj.gov/dep/njpact/**
- **Don't Look Up** – A popular 2021 film that provides a topical allegory for the politicization and media coverage of climate change.

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[1] *See* Press Release entitled "New Scientific Report Details Climate Change Impacts On New Jersey, Supports Murphy Administration Efforts To Protect The State's Environmental, Public And Economic Health" available at https://www.nj.gov/dep/newsrel/2020/20_0033.htm (visited March 23, 2022).

[2] *See* Press Release entitled "New Study Finds 251,000 New Jersey Homes Worth $107 Billion will be at Risk from Tidal Flooding" available at https://www.ucsusa.org/about/news/accelerating-sea-level-rise-lower-48-states-projected-worsen-tidal-flooding-putting-many (visited March 23, 2022).

[3] *See* Press Release entitled "Army Corps releases draft report for New Jersey Back Bays study" available at https://www.nap.usace.army.mil/Media/News-Releases/Article/2738123/army-corps-releases-draft-report-for-new-jersey-back-bays-study/ (visited March 23, 2022).

[4] *See* Press Release entitled "State by State Analysis: Property Value Loss from Sea Level Rise" available at https://firststreet.org/press/property-value-loss-from-sea-level-rise-state-by-state-analysis/ (visited March 23, 2022).

[5] *See* Press Release entitled "Getting U.S. to net-zero emissions by 2050 will take massive, but affordable, coordination" available at https://environment.princeton.edu/news/net-zero-emissions-by-2050/ (visited March 23, 2022).

[6] Barr, H., Orlando, P., Kettig, R., Barry, R. C., Karmarkar-Deshmukh, R., & Kamel, M. (2020). *New Jersey's Global Warming Response Act 80x50 Report*. New Jersey Department of Environmental Protection. Trenton, NJ.

[7] U.S. EIA, State Energy Profile Analysis, New Jersey, available at https://www.eia.gov/state/analysis.php?sid=NJ (visited March 24, 2022)

[8] *See* Press Release entitled "DEP Commissioner LaTourette Announces Adoption of Clean Truck Rules, Setting New Jersey on Path for Zero-Emission Vehicle Future" available at https://www.nj.gov/dep/newsrel/2021/21_0043.htm#:~:text=While%20medium%20and%20heavy%2Dduty,5). (visited March 24, 2022).

South Jersey Industries
Testimony before Senate Environment & Energy Committee
April 21, 2022

Introduction by Richard DeRose:

Good morning, Chairman Smith and members of the Senate Environment & Energy Committee. My name is Rich DeRose and I am Government Affairs Lead at South Jersey Industries or SJI. Among other businesses, SJI has two regulated natural gas utilities, South Jersey Gas and Elizabethtown Gas. Together, South Jersey Gas and Elizabethtown Gas deliver safe, reliable, clean, and affordable natural gas to over 700,000 customers in our State. Our utility customers rely on our service for a variety of uses, but primarily for heating and cooking.

I want to thank you for inviting SJI to this hearing to discuss decarbonization of the natural gas sector. I have with me today Donna Schempp and Kyle Nolan, who lead SJI's efforts to introduce innovative resources like renewable natural gas and green hydrogen into our gas distribution system. After they conclude their remarks, we will be happy to answer any questions you may have.

I will now turn the microphone over to Donna.

Thank you.

South Jersey Industries
Testimony before Senate Environment & Energy Committee
April 21, 2022

Remarks by Donna Schempp:

Good morning, Chairman Smith and members of the Senate Environment & Energy Committee. My name is Donna Schempp and I serve as President & COO of SJI Renewable Energy Ventures and senior vice president of SJI Energy Enterprises Group. Thank you for the opportunity to appear before this committee today to talk about the many exciting investments that SJI is making to advance our clean energy and decarbonization initiatives.

As the leader of SJI's non-regulated, clean energy focused business entities, I am fortunate to help drive our organization's contributions to meeting the long-term environmental goals of our State and nation. One of the most important ways that SJI is helping to bring about our clean energy future is through investments in, and development of, renewable natural gas projects. Renewable natural gas, or "RNG," is methane that is derived from landfills, sewage treatment plants, and agricultural activities, and is chemically identical to and fully interchangeable with conventional natural gas.

Across the country, RNG production, distribution and consumption is growing every year. The production of RNG relies on "digesters," which extract methane (a powerful greenhouse gas) from various waste products, using a proven membrane "upgrading process". This methane gas would otherwise escape into the atmosphere and contribute to climate change. RNG technology repurposes this methane gas for any end use that is typically fueled by traditional natural gas. For example, RNG can be utilized for electricity generation, building heating and cooling, industrial applications, transportation, and gas appliances, such as kitchen stoves and ovens.

Ramping up RNG production and distribution will reduce the need for geologic natural gas, which is important because RNG is far less carbon intensive than geologic natural gas and can be "carbon negative" depending on its source. SJI fully embraces RNG and seeks to displace as much geologic natural gas with RNG as reasonably possible.

As states across the country continue to set aggressive decarbonization goals and strategies, a growing number of jurisdictions are looking to the natural gas industry for solutions. In 2019, Oregon enacted sweeping legislation setting RNG goals for the state's natural gas utilities, thereby charting a course for RNG to become an important part of Oregon's future energy supply. And just this year, California became the first state in the nation to adopt a renewable natural gas standard, requiring gas utilities in that state to replace a certain percentage of the traditional gas they deliver to their customers each year with renewable natural gas. Moreover, the public utility commissions in Maryland and Vermont have advanced RNG programs while New York and several other states have launched proceedings to explore decarbonization options for the industry, including RNG.

For SJI's part, we too have committed to advancing RNG projects both here at home in New Jersey and across the country. As a first step, in 2020, SJI acquired a minority interest in a leading developer in RNG and mobile energy services, Rev LNG, leading to two new divisions of SJI known as SJI Renewable Energy Ventures and SJI RNG DevCo. Between SJI and REV, we currently have ten RNG production facilities and two interconnect sites under development in the Northeast and Midwest; specifically in Connecticut, Michigan and New York. Together, the RNG produced from these ten farms will offset the negative environmental impact of 9,625 cars driving on the road over a year within the United States.

Later this year, RNG produced at our production facility at Oakridge Dairy in Connecticut will be transported and directly injected into Elizabethtown Gas's distribution system for the benefit of our NJ customers. This will mark the first time in our over 100-year history that we will be directly distributing RNG to our utility

customers through our pipeline infrastructure. The Oakridge Dairy project will create approximately 75,000 MMBTUs annually, which is enough energy to serve 1,250 homes in the Elizabethtown Gas territory.

As a direct result of SJI and REV's partnership in this area of strategic importance, SJI is positioned well to become a national leader in waste-to-energy projects by 2023. For instance, this year we will break ground on a project whereby we will receive RNG produced from an organic food waste recycling plant in Linden, NJ. The consumer-quality RNG produced at this facility will be directly injected into Elizabethtown Gas's system via an interconnection. Once complete in 2025, SJI REV's entire portfolio of large-scale RNG projects has the potential to create enough renewable energy to displace the equivalent of over 24.9 million gallons of gasoline consumed in the United States annually.

Despite SJI's strides on the RNG front and the growth and development of RNG technologies and applications across the country, the industry has seen only pedestrian growth here in New Jersey. There are several reasons for this, including a statewide public policy that is focused primarily on electrification to meet decarbonization goals, and a lack of direct State support needed to unlock the potential of RNG. We believe that, like other jurisdictions, NJ should consider establishing a statutory and regulatory framework to create pathways for RNG development and deployment in our State. Oregon's recently enacted legislation is a suitable model for New Jersey, because it provides meaningful support for accelerated investment in the industry. Senate Bill 1366, currently pending before this committee, would adopt an Oregon-style RNG approach here in our State.

At SJI, we are confident that if properly incentivized, RNG will help to accelerate our State's climate goals by adding another renewable energy resource to our energy mix, thereby alleviating the need for offshore wind and solar to bear the full burden of decarbonizing the energy sector in our state. The deployment of RNG will also help us to avoid the most vexing concerns raised by full electrification. These include the imposition of additional burdens on the electric grid to accommodate dramatic increases of electric load, and the attendant impact on electric rates. Further, electrification would strand billions of dollars of natural gas infrastructure assets, which ratepayers have invested in for over 100 years. The deployment of RNG will allow us to leverage the modern and resilient natural gas infrastructure that has already been paid for by the ratepayers and which presently delivers energy to 75% of New Jersey homes.

Once again, thank you for the opportunity to address the committee today.

8x

South Jersey Industries
Testimony before Senate Environment & Energy Committee
April 21, 2022

Remarks by Kyle Nolan:

Good morning, Chairman Smith and members of the Senate Environment & Energy Committee. My name is Kyle Nolan and I serve as Vice President, Strategy at SJI.

At SJI, we're committed to protecting the environment and reducing our company's carbon output. In April 2021, SJI was proud to announce its plan to achieve carbon neutrality by 2040. To achieve this, we're reducing fugitive gas emissions and enhancing energy efficiency. Importantly, we're also on our way towards delivering transformational sources of fuel to our customers, like renewable natural gas and green hydrogen. In short, SJI is fully committed to combatting climate change and bringing about the clean energy future we all want.

As an experienced energy leader, we understand that SJI has a vital role to play in the clean energy future of our state, region, and country, and we are excited by the impact our modern infrastructure will have in helping New Jersey and the region decarbonize. Over the years, our organization has committed itself to investing in new and innovative technologies that will safely, reliably and affordably deliver low carbon energy to the more than 700,000 families and businesses that we serve across our State.

As discussed previously by Donna, renewable natural gas is a critical tool necessary to reach our clean energy goals in a cost-effective manner. In addition to RNG, "green hydrogen" is another renewable energy source that NJ must continue to explore to help meet the State's climate goals and to spur economic development. This energy source is created through electrolysis (using electricity to split water into hydrogen and oxygen) and the blending of the sequestered hydrogen into natural gas systems. When the electricity applied is generated by renewable resources, the end-product is a carbon free energy source that can be used for natural gas applications. Accordingly, green hydrogen can serve as a complement to the State's plan to accelerate the deployment of offshore wind and solar electricity generation since excess electricity generated by these facilities can be applied to the hydrogen production process. In this way, green hydrogen production can serve as a renewable energy multiplier.

Like RNG, green hydrogen can leverage natural gas infrastructure to deliver positive environmental outcomes while helping to ensure the reliability and resiliency of our energy delivery systems. The hydrogen industry is rapidly growing and evolving, and its accelerated deployment will depend upon the support of regulators and policymakers to provide assurances for investors, utilities and other industry participants. State-level legislation that encourages investments in hydrogen technologies can play a critical role in spurring the rapid development in this industry. As with RNG, natural gas utilities, with decades of experience in the movement and delivery of gas molecules for energy purposes, are well positioned to make the necessary investments provided State support is in place.

9x

SJI and other natural gas utilities in our State have already begun to explore the practical application of green hydrogen technologies. In 2020, for instance, SJI announced that it had entered into a memorandum of understanding with Atlantic Shores Offshore Wind, setting the table for a potential partnership on the establishment of a pilot program to continue demonstrating the feasibility of creating green hydrogen in our South Jersey Gas territory.

In June of 2021, Atlantic Shores received the key regulatory approval from the NJ Board of Public Utilities allowing it to proceed with the development of a wind farm off the coast of NJ. As part of its proposal to the BPU for the development of offshore wind assets, Atlantic Shores affirmed its intentions to partner with SJI on the green hydrogen pilot program. While Atlantic Shores' wind farm is several years away from completion, SJI has begun early planning and development of the hydrogen generation project. In the meantime, SJI is actively pursuing the development of other green hydrogen projects in New Jersey.

We firmly believe that this pilot program will demonstrate what is possible as we move toward a green energy economy in NJ with green hydrogen as an important component. This initiative will spur cutting-edge research and development to occur right here in our State, with our experienced natural gas utilities and seasoned construction trades leading the way.

The prospects for hydrogen delivering on our collective goal of a clean energy future have been recognized by both the federal government, and our state government. Late last year, President Biden signed into law the Bipartisan Infrastructure Framework, which among other things appropriated $8 billion to establish regional clean hydrogen hubs around the country. In March of this year, Governor Murphy announced a partnership with nearby states to establish a clean hydrogen hub in our part of the country. Furthermore, the Build Back Better legislation, which is still pending in Congress, would provide federal tax credits to producers of hydrogen gas.

There are many ways that our State can decarbonize our energy grid and deliver on the promise of a clean energy future -- offshore wind, solar, and more -- but to truly unlock the potential that the renewable energy industry has for New Jersey, we must explore every option and dedicate ourselves to the broadest and most cutting-edge clean energy technologies available. Without question, both RNG and green hydrogen can help to forge our path to a greener future.

Once again, thank you for the opportunity to discuss these important topics with you today.

EMPOWER NJ
NO FOSSIL FUEL PROJECTS

Completed and Pending Murphy Administration Fossil Fuel Projects

Completed Fossil Fuel Projects in NJ – 2018 to 2021 (Greenhouse gas (GHG) emissions are annual and measured in million metric tons (MMT) CO2e).	
Sewaren 7 power plant	540MW combined-cycle power plant in Woodbridge. Air quality permit was approved in 2018 and it went into service later that year. GHG emissions - 5.2MMT
Rivervale South to Market pipeline	Upgrade of existing gas pipeline in Bergen, Hudson Counties and the Meadowlands adding capacity to carry 190,000Mcf/day. GHG emissions – 4.2MMT
Garden State Expansion Project compressor	New gas compressor station in Bordentown, with a capacity of 180,000Mcf/day that connects to the Southern Reliability Link Pipeline. GHG emissions - 4MMT
Southern Reliability Link pipeline	New Jersey Natural Gas 28-mile, 280Mcf[1]/day, pipeline through portions of Burlington and Ocean Counties in the Pinelands. GHG emissions - 3.1MMT
Gateway Expansion Project compressor	Expansion of the existing Roseland gas compressor station adding the capacity to carry 65,000Mcf/day. GHG emissions – 1.4MMT
Lambertville East Expansion compressor	New gas compressor station in Lambertville with a capacity of 60,000Mcf/day. GHG emissions – 1.4MMT
Total GHG potential from completed projects[2]	**19.3MMT/year** – 5.2MMT from gas plant – 14.1MMT from pipelines and compressors[3]

11x

Pending Fossil Fuel Projects (Greenhouse gas (GHG) emissions are annual and measured in million metric tons (MMT) CO2e).	
Regional Energy Access Expansion (REAE) pipeline	Williams Transco gas pipeline with a capacity of 829,000Mcf/day. Project includes compressor station expansions in Branchburg and Old Bridge and a new compressor station in West Deptford. All gas is planned for consumption in NJ. GHG emissions - 18MMT[4]
Gibbstown Liquid Natural Gas Port and LNG bomb trucks and trains	New project to compress and transport LNG via train/trucks for export through Gibbstown export terminal. LNG volume is 5 million gallons/day. GHG emissions – 12.56MMT[5]
NJ Turnpike and Garden State Parkway expansion projects	New Jersey Turnpike Authority plans to widen 60 miles of the Turnpike and 64 miles along the Parkway for a total of 370 lane miles, which will generate roughly an increase of 1,816 million VMT (Vehicle Miles Traveled) per year. GHG emissions – 1.4MMT[6]
Tennessee Gas Pipeline compressors	TGP expansion of existing Wantage compressor and new compressor in West Milford adding capacity for an additional 115,000Mcf/day. GHG emissions from operations of compressors - 0.313MMT[7] GHG emissions from downstream consumption of gas - 2.53MMT[8]
Keasbey Energy Center (aka CPV2)	Competitive Power Ventures (CPV) 630MW gas power plant in the overburdened environmental justice community of Keasbey (section of Woodbridge). This will be the third major fossil fuel power plant sited in Woodbridge. GHG emissions– 2.36MMT[9]
New Jersey Transit Microgrid (NJTRANSITGRID) power plant	New 140 MW gas power plant in Kearny to operate trains during loss of commercial power. NJT refuses to consider a solar/storage-based microgrid despite its proven viability. Expected to go into service in 2028. GHG emissions - 0.6MMT[10]
Passaic Valley Sewerage Commission (PVSC) fracked gas power plant	New 84MW capacity PVSC gas plant in Newark to power operations when commercial power is lost. GHG emissions - 0.028MMT[11]

12x

Total GHG potential from pending projects[12]	**GHG emissions – 37.8MMT** - 3.0MMT from gas plants - 34.8MMT from pipelines, compressors, LNG and highway expansion

[1] Mcf - thousand cubic feet of gas.

[2] Not related to any other increases or decrease of GHG in previous years.

[3] Total GHG emissions associated with compressors include emissions from the volume of gas identified as compressor capacity that will be carried by pipelines as well as direct compressor emissions. The model assumes that the purpose of new compressors on existing gas lines is to increase gas volume without new pipeline development. In order to be conservative, estimated gas volume of all new compressors and pipelines is assumed to be 90% of stated capacity.

[4] OCI tool using gas capacity.

[5] 1,000 LNG gallons = 1.6MMT. Total methane shipped is 2.92MMT/year. Leakage rate from API report is 5%. Total leakage is 0.146MMT. Using methane GWP of 86 this equates to 12.56MMT CO2e.

[6] Note, this is a rough estimate. Assumes adding an average of 1.5 lanes in each direction for total of 370 new lane miles and 1,816 million additional VMTs/year. Assumes 15% of new traffic is trucks with an average weight of 35,000 lbs each.
The average freight truck in the U.S. emits 161.8 grams of CO2 per ton-mile (EDF).
The average passenger vehicle emits about 404 grams of CO2 per mile (EPA).

[7] GHGs from K. Frost experience/analysis based on manufacturer data from same turbines. Known emissions from the turbines being used is 90,958 tpy CO2e (using 100-year GWP). Multiplied by 86/25 to get 20-year value of 312,896 tpy or 0.313MMT.

[8] OCI tool using gas capacity.

[9] CPV air quality permit application.

[10] NJT NJTRANSITGRID FEIS

[11] Emissions from planned operations. Assumes 1,284 hours of non-emergency operation plus 72 hours of emergency operation per year, emission rate of 1,317 lb CO2e/MWhr operating to produce 34MW.

[12] Does not account for any other potential increases or decreases of emissions in the previous or coming years.

EMPOWER NJ
NO FOSSIL FUEL PROJECTS

REDUCING GREENHOUSE GAS EMISSIONS IN THE TRANSPORTATION SECTOR, PROMOTING ENVIRONMENTAL JUSTICE AND MAKING TRANSPORTATION PLANNING MORE RATIONAL, EFFECTIVE, EQUITABLE AND AFFORDABLE

APRIL 21, 2022

EmpowerNJ, a coalition of 135 environmental and community groups, submits the following proposals to reduce greenhouse gas emissions in the transportation sector as required by Executive Order 274 ("EO 274"), to require cost-benefit analyses before spending billions of dollars on highway expansions, and to consider and prioritize environmental justice in New Jersey's transportation planning as required by Executive Order 23.

Summary of Needed Executive and Legislative Actions

- EO 274 establishes that it is State policy to reduce greenhouse gas emissions ("GHGs") by 50% from 2006 levels ("50 x 30" Goal) and directs all State agencies to develop strategies to meet the 50 x 30 Goal. [1] The Department of Transportation ("NJDOT") and the New Jersey Turnpike Authority ("NJTA") have failed to implement EO 274 and are undermining the 50 x 30 Goal. Each agency should be directed to implement EO 274 and prepare a climate action plan.

- The climate action plans should require NJTA and NJDOT to perform a cost-benefit analyses on all highway expansion projects which considers (i) whether a project would increase or decrease traffic, vehicle miles traveled (" VMT") and GHGs; (ii) potential increases in budgeted construction costs, (iii) the health, economic, and social costs of a project; and (iv) alternatives to the highway expansion. No project should proceed if it is inconsistent with the 50 x 30 Goal or would increase GHGs.

- The $4.7 billion Turnpike expansion from Exits 14 through 14C[2] which is opposed by Jersey City where most the road widening will take place, should be halted until a climate action plan and a cost-benefit analysis are prepared for public review and comment.

- NJDOT should prepare a State-wide transportation plan for funding all transportation projects – new highways, road repair, public transportation, safe streets, bikeways, greenways, and walkways – that prioritizes reducing GHG and fix-it-first projects over highway expansions, consistent with federal policy.

- The annual diversions from New Jersey Transit's capital budget should end.

- Environmental justice must be considered in all transportation planning decisions as required by Executive Order 23[3], something neither NJDOT nor NJTA has done.

14x

- The protections of the environmental justice law, N.J.S.A. 13:1D-157 to -161, should be expanded to highway projects. Highway projects cause as much or more health and economic harm to overburdened communities than the projects covered by that legislation.

- There is no NJTA Board member or member of NJTA's senior staff who has expertise or a background in climate or environmental justice issues, is from an overburdened community or is African American.[4] The NJTA Board should be reconstituted, and senior staff should be hired to address climate and environmental justice issues.

- NJT should be barred from building a 24/7 gas fired, methane producing power plant in the Meadowlands, which directly conflicts with New Jersey's climate goals.

- Consistent with federal policy, NJDOT and NJTA should be prioritizing repair projects over new highways.

- NJDOT and NJTA should provide for robust public input and review of its major projects, most importantly at the outset of the project and before millions of dollars are spent.

The Looming Climate Catastrophe

- The incontrovertible scientific consensus is that there must be a 45%- 50% reduction in GHGs by 2030 to limit global warming to 1.5 °C and thereby avoid climate catastrophe. [5]

- The dire February 28, 2022 report of the IPCC Working Group confirms that climate change is already causing severe and permanent loss and damage and that even temporary global warming of more than 1.5 °C would result in further irreversible harm from which recovery or adoption would be difficult, if not impossible.[6]

GHGs from the Transportation Sector

- The transportation sector accounts for 42% of the state's carbon emissions, more than the national average of 28%.[7]

- 40.6% of the State's net carbon emissions is fossil fuel-powered vehicle use. This does not consider GHGs created through the extraction, refining and distribution of fossil fuels used to run those vehicles.

- Reducing the growth in VMT is critical to reducing GHGs from the transportation sector. VMT have been steadily increasing in New Jersey.[8]

- Funding highway expansions relative to other strategies is "the main driver of emissions outcomes."[9]

- The use of public transportation reduces GHGs relative to fossil fuel powered private cars: 76% for heavy rail, 62% for light rail, and 33% from using even fossil fuel run buses.[10]

- Electric vehicles (EVs) will eventually reduce vehicular GHGs but will not do so in the amount needed by 2030. Less than 1% of the 250 million cars, SUVs, and light-duty trucks on the road in the United

States are EVs. If 50% of new passenger cars and light trucks sales are EVs by 2030, an ambitious goal that will be hard to meet, fossil fuel powered vehicles would still make up the vast majority of the vehicles in use in 2030 and between 30% to 40% of cars in 2050.[11]

- Medium- and heavy-duty vehicles account for less than 5% of the vehicles on the road but produce more than 20% of the emissions from the transportation sector.[12] Battery electric trucks are not expected to become cost-competitive for smaller trucks until 2030 while heavy trucks with less than 500-miles of range are not projected to be cost-competitive until 2035.[13]

Pollution from Vehicle Use

- Particulate matter, known as PM 2.5, is a great risk to human health and one of the most dangerous environmental pollutants.[14] It is associated with premature deaths, heart and lung disease, asthma, and respiratory issues. COVID-19 mortality rates are higher in areas with more particulate pollution than in areas with even slightly less particulate pollution.[15]

- Particulates also create ground-level ozone, informally known as smog. Vehicles are the largest contributors to ground level ozone and are responsible for "71% of the State's nitrous oxide emissions."[16] Ground level ozone causes respiratory diseases and premature death with children and senior citizens being among the most vulnerable.[17]

- In New Jersey, more than 600,000 adults and 167,000 children suffer from asthma, and thus are also particularly vulnerable to ozone pollution.[18] There were also 385,665 cases of COPD, all of which were caused or exacerbated by vehicle pollution.[19]

- In the United States, 350,000 premature deaths are attributed to fossil fuel pollution with New Jersey being among the states with the highest number of deaths per capita.[20] Fossil fuel pollution kills more people each year than HIV, tuberculosis, and malaria combined with the U.S. having the highest estimated rate of deaths among children under the age of five from lower respiratory infections.[21]

- People who live, work, or attend school near major roads have an increased incidence and severity of health problems associated with air pollution.[22]

- 30% to 45% of the urban population in North America, live "next to a busy road[23], a percentage that is undoubtedly higher in New Jersey with our highest in the nation population density. Vehicle pollution will directly affect people who are within 0.2 to 0.3 miles of a highway.[24]

- All of New Jersey suffers from unhealthy air due to excess levels of ground-level ozone.[25] The American Lung Association gives Hudson County, the site of NJTA's $4.7 billion Turnpike expansion, an F grade with respect to high ozone days.[26]

Environmental Justice

- Traffic-caused pollutants disproportionately harm people of color and low-income communities.

- Poor air quality is one reason that people of color die disproportionately from COVID-19.[27] African Americans are three times more likely to die from asthma.[28]

- Climate change and car pollution increase the risk that pregnant women have premature, underweight, or stillborn babies with African American mothers affected the most.[29]

- Black and Hispanic populations bear a "pollution burden" by being exposed to 56% to 63% more PM 2.5 pollution than non-Hispanic whites.[30]

- Highways have been disproportionately built and expanded in African American and other low income, minority communities at great economic and health costs to those communities. The 2021 federal Bipartisan Infrastructure Law provides $1 billion in grants to tear down or refigure highways to mitigate their impact and the Biden Administration and cities around the country are attempting to increase this amount many times over.[31]

- The Biden Administration stopped a $7 billion highway expansion that would have been built in largely minority neighborhoods in Houston.[32] There is no such effort being made in New Jersey.

- EO 274 states that "minority and low-income communities are disproportionately affected by climate change, including by the health effects of higher temperatures and increased air pollution..."

- The Environmental Justice Act, N.J.S.A. 13:1D-157 to -161, recognizes that minority and low-income communities are disproportionately affected by climate change and pollution and limits the future placement and expansion of certain polluting facilities in "Overburdened Communities."

- The Environmental Justice Act does not apply to highway projects, even though those projects can be equally or more harmful than the facilities the law covers.

- EO 23 directs all Executive Branch departments and agencies to consider environmental justice in implementing their responsibilities.[33]

- NJTA and NJDOT have ignored EO 23 and environmental justice in its plans and decision-making. They have not issued any rules or regulations, or taken any action we are aware of, to comply with EO 23, but instead are doubling down on the failed policies of the past by expanding highways in urban areas all over the State.

Induced Demand

- Traffic studies and experience universally show that highway widenings, particularly in urban areas, will only provide temporary, if any, reduction in traffic congestion.[34] Ultimately, lane widening results in more driving and even greater long-term congestion, a phenomenon known as induced demand. Each mile of new highway lane increases capacity up to 2,850 vehicles/hour.[35]

- Induced demand is a fundamental, incontrovertible principle of traffic planning. [36]

- There are also countless real-world examples of this. Los Angeles' I-405 freeway was completed in 2014 after five years of construction and a cost of over $1 billion. The data shows that traffic is moving slower now on I-405 than before the widening.[37]

- When Texas widened the Katy Freeway in Houston to more than 20 lanes in 2011, the widest in the world, at a cost of $2.8 billion, congestion returned to previous levels within a few years, and it is now worse.[38]

- The EPA's Guidebook on Induced Travel concluded studies showing that a 10% increase in highway capacity caused an immediate 3% to 5% increase in VMT in 1 to 2 years and a 5% to 9% increase in VMT over 10 to 20 years.[39]

- Another report found that between 1993 and 2017, 30,511 new freeway lane-miles of road were built in the largest 100 urbanized areas in the country, an increase in capacity that far outstripped the population growth in those regions over the same time. Traffic delays in those urbanized areas increased by 144 %.[40]

- Rocky Mountain Institute ("RMI") -- a highly regarded firm dedicated to researching climate change and sustainability issues, which aided NJBPU in preparing the 2020 State Energy Master Plan, -- summarized the failed policies of highway expansions: "[R]oad expansion projects move us in the wrong direction, generating more traffic that increases climate pollution, worsens local air quality, and leads to more road crashes. Vulnerable and frontline communities bear a disproportionate burden from these impacts, including health effects from hazardous air pollutants."[41]

- NJTA has not provided any evidence, or given any reason, why its proposed Highway Expansions will produce different results.

The NJTA's Highway Expansion Plans

- NJTA's 2020 $24 billion capital improvement plan calls for spending more than $16 billion over ten years to widen the New Jersey Turnpike and Garden State Parkway, overwhelmingly in the most urbanized northeastern corner of the state.[42] None of the projects allow for or incorporate a transit component. This amount does not include the health, social, economic, quality-of life, and opportunity costs caused by the highway widenings.

- The costs of highway construction projects, particularly in urban areas, are often understated to hide their true costs. The Big Dig in Boston was originally scheduled to cost $2.8 billion.[43] The final cost of the project was $24.3 billion.[44]

- When the Turnpike expansion from Exits 14 to 14C was first proposed in 2020, the budget was $4.3 billion. It is now $4.7 billion, and construction has not begun.[45]

- Federal agencies have long incorporated health, social, economic, quality-of-life, and opportunity costs in their benefit-cost analyses. On his first day in office, President Biden issued E.O. 13990, directing those costs be updated to reflect the best available science and consider climate risk, environmental justice, and intergenerational equity.[46]

- NJTA's capital plan and ten-year strategic plan do not mention GHGs, climate change or social costs of carbon and we are unaware of those matters being addressed anywhere else.

- There is no one on NJTA's Board or senior staff who has expertise or a background in climate or environmental justice issues, is from an overburdened community or is African American.[47]

- By spending the bulk of its capital funds on highway expansions, NJTA is in direct conflict with federal policy. In December 2021, the Federal Highway Administration issued a memo regarding projects to be funded under the Bipartisan Infrastructure Law, which prioritized repairing and maintaining "existing transportation infrastructure before making new investments in highway expansions." [48]

- The proposed lane widenings would increase VMT dramatically by increasing highway capacity. Funding highway expansions are a main driver of increased GHGs.[49]

- NJTA did not include any cost-benefit analysis in its capital plan, and we are unaware of those issues being addressed anywhere else.

- NJTA's capital plan does not mention GHGs, climate change or social costs and we are unaware of those costs being addressed anywhere else.

The Jersey City Turnpike Extension Expansion

- NJTA is currently proceeding with its plan to expand the Turnpike from Exit 14 through Exit 14C, most of which runs through Jersey City.[50]

- When this expansion was first proposed in 2020, the budget was $4.3 billion. It is now $4.7 billion and only preliminary design work has started.[51]

- In a January 7, 2022 letter to the NJTA, Jersey City stated its opposition to the project because i) it will produce additional traffic on city streets as there will not be any capacity change at the Holland Tunnel or its approaches; ii) it will increase pollution and noise; iii) it will not reduce traffic congestion over the long-term due to induced demand; iv) road widening projects are not a sustainable, long-term solution to meet regional travel needs; and v) it will run counter to state, regional, and local climate goals. Jersey City asked NJTA to consider an alternative that modernizes the Turnpike without expanding it.

- NJTA has not publicly addressed these concerns or the concerns of the many citizens who have expressed their opposition to the Project during public NJTA hearings.

- NJTA has only provided a cursory explanation for why its Highway Expansion Projects are being proposed and built. For example, the entire description of the $4.7 billion Jersey City is set forth in two pages of big print with photographs taking up almost half the pages. The entirety of the explanation for spending $4.7 billion on the Project consists of three words: Safety and Customer Satisfaction.[52]

Fix-it-First and Safety Projects

- In December 2021, the Federal Highway Administration issued a memo regarding projects to be funded under the Bipartisan Infrastructure Bill, which prioritized repairing and maintaining "existing transportation infrastructure before making new investments in highway expansions."[53]

- A 2021 report found that 36% of the state's highways are deficient (rough and/or distressed), 529 bridges are structurally deficient and 2,367 need repairs. The price tag for unfunded fix-it-first projects is more than $10 billion -- at least $8.6 billion for bridges and $679 million for just the top 500 state road projects over the next few years, which doesn't even include needed repairs to the far larger network of local and county roads.[54]

- Investments are needed in road safety to address the skyrocketing number of vehicular fatalities since the pandemic. From 2020 to 2021, New Jersey vehicular fatalities increased by 19.9%, from 587 to 701. Year to date as of March 24, 2022, fatalities have increased another 9.9%.[55]

NJT's Unfunded Capital Plans

- The New Jersey Energy Master Plan (EMP) calls for, among other things, a concerted effort to expand public transportation options and reduce VMT which "will also yield many economy-wide financial and health benefits."[56]

- Many crucial projects in New Jersey Transit's s five-year and ten-year capital plan are unfunded.[57] Since 1990, $10 billion has been diverted from NJT's Capital Budget to cover NJT operating expenses with $1.7 billion having been diverted in the last four years.[58] The proposed FY 2023 budget calls for $362 million to be diverted from NJT's capital account to pay for operating expenses.

- NJTA's contributions to NJT have recently increased but have been erratic. It was $154M in FY 2019 and $129M in FY 2020 and 2021 as compared to an average of $295 million in fiscal years 2013-2016. The April 20, 2021 MOU between Treasury and NJTA provides for payments of $350M in FY 2022; $746M in FY 2023; $465M in FY 2024; $480M in FY 2025; $495M in FY 2026; $510M in FY 2027 and $525M in FY 2028.[59]

- The MOU can be unilaterally revoked by NJTA or Treasury. Section 2.02 provides that funding after FY 2021 "is subject to approval [by NJTA] as part of the corresponding year's Annual Budget."

- With the end of federal COVID funding through the American Rescue Plan and additional federal stimulus funding, NJT is projecting a $550 million deficit in its $3 billion budget for its FY26 budget, which is being described as a fiscal cliff. [60]

- Crucial NJT projects are not being funded or are moving at a snail's pace. Electric buses are a prototypical example. NJT did not approve its first order of electric buses until October 2021[61] and is finally planning on putting those eight electric buses into service later this year.[62] This is years after other public transit systems have done so.

- Los Angeles ordered 155 electric buses in 2020 as part of its plan to fully electrify its fleet by 2028.[63] In 2021, Los Angeles phased out all its fossil-fuel run buses on its popular G Line and replaced them with 40 zero-emissions electric buses.[64] California has in total 1,400 electric buses in use or on order. [65]

- Transit systems with fewer bus riders than NJT are using and purchasing far more electric buses than NJT. King County Metro (Seattle) first started using and testing electric buses in 2016; it leased ten

20x

more electric buses in 2018-19 and ordered 40 more electric buses in 2021.[66] Austin, Texas ordered 197 electric buses in 2021.[67] Denver has 36 electric buses in use.[68]

- The slow pace of NJT's bus electrification program will almost certainly put it in violation of the omnibus EV bill (S2252/A4819), signed into law by Governor Murphy in January 2020, which mandates that NJT electrify 10% of its bus fleet purchases by December 2024.

- A recent Star-Ledger editorial correctly summarizes the situation this way:
"Once again, Murphy is stitching together a $2.75 billion budget that includes another massive raid of the capital budget, which compromises crucial infrastructure projects. This abysmal habit of shifting seed money into operations has cost the agency about $10 billion in potential investments over the last few decades, which is a good reason why NJ Transit still has no electric buses, why its light rail projects have stalled, and why its rail passengers still bounce inside those creaky, 40-year-old Arrows.[69]

The Economic Benefits of Public Transportation vs Highway Expansions

- Besides for reducing GHGs, VMT and traffic congestion, funding public transportation projects creates more jobs and economic growth than highway expansions.

- A Rutgers report submitted with NJT's capital plans details how, if fully funded, the 5-year plan "would generate significant direct and spillover impacts within the New Jersey economy creating jobs and economic activity throughout the state." Project spending in the first five years would generate an estimated $13.3 billion in economic output in the state, supporting 60,000 direct, indirect, and induced jobs and providing $3.7 billion in employee compensation. The 10-year capital plan would generate $54.9 billion in economic output in New Jersey, 245,000 jobs and $15 billion in employee compensation.[70]

- In contrast to the Rutgers NJT study, NJTA has not provided any analysis showing that the highway expansions would produce economic growth other than in one-time construction jobs.

- Other research shows that public transportation projects produce even more jobs and economic growth. One study found that each $1 billion invested in public transportation produces $5 billion in GDP growth and 49,000 jobs.[71] Public transportation projects generally generate 31% more jobs/dollar spent than expanding highways.[72]

- Public transportation particularly benefits low-income families and essential workers, providing them with increased access to jobs and allowing them to spend less on housing and transportation as a percentage of their income.[73]

- The economic and population growth in Hudson County illustrates the benefits of public transportation. The population of Hudson County grew 14.3% between 2010 and 2020, making it the fastest growing county in New Jersey.[74] That growth was fueled by public transportation, not highways.

- Harrison's population has grown 99% from 2010 to 2022[75], a direct result of the PATH station located there.[76]

21x

- Bayonne was one of the fastest growing municipalities in New Jersey between 2010 and 2020 as a direct result of the Hudson-Bergen Light Rail line.[77]

- Hoboken's explosive growth is due in substantial part to its "easy access to public transportation."[78]

The Inaction of NJDOT and NJTA with respect to GHGs and Environmental Justice

- Neither NJDOT nor NJTA has regulations that mentions GHGs or climate change.

- NJDOT's web site lists 46 research projects that have been completed or in progress since 2017 and none of them involves climate change or GHGs.

TRANSITGRID

- NJTransit remains intent on building a methane fired gas plant in the Meadowlands, the TRANSITGRID Project, despite Governor Murphy direction to redesign the project primarily using renewable energy.

- NJT's RFP required all bidders to submit design proposals for a centralized energy generation facility, which for all practical purposes eliminated renewable options, such as solar, that would require the use of land outside the site where the plant is located.[79]

- The power plant would not just come online in case of an outage, the initial reason for the project, but would run 24/7.

- The RFP will allow NJT's methane plant to emit 600,000 tons of CO2 per year along with other toxic pollutants into the air in the Kearny/Newark area, an already overburdened community.[80] It only calls for a "transition" to net carbon neutrality by 2050, with no intermediate milestones or plans.

Actions by Other States

- Numerous other States are taking actions consistent with the rules proposed here.

- In December 2021, Colorado's DOT adopted climate change regulations that are aimed to redirect funding away from highway expansions and toward projects that cut vehicle pollution, such as buses and bike lanes. Under the new rules, local governments must estimate GHGs expected from future road projects, factoring in induced traffic with a long and short term VMT analysis. Those plans will have to adhere to an overall emissions budget. If localities want to expand highways, they need to offset the extra emissions with cleaner projects, such as public transit, bicycle trails, electric-vehicle chargers, car-pooling or land-use changes that help limit suburban sprawl.[81]

- Colorado's DOT rules should be a model for NJTA to build on.

- In March 2020, Oregon's Governor Kate Brown issued Executive Order 20-04, which, similar to EO 274, calls for Oregon to reduce GHG emissions to at least 45 percent below 1990 emissions levels by 2035 and directed state agencies to take action to meet this goal.[82]

- Oregon's DOT then adopted a five-year Climate Action Plan to address the impacts of climate change and extreme weather on the transportation system in Oregon, which includes actions to reduce GHGs from transportation, improve climate justice and make the transportation system more resilient to extreme weather events.[83] Oregon considers GHGs when deciding what projects to fund at each stage of the development of a project.[84]

- California prioritizes emissions reductions as part of the state's transportation plan.[85] The state will now measure induced traffic during environmental reviews of new highways and plans to prioritize funding toward fixing existing roads rather than building new ones.

- Last year, officials halted a plan to widen the 710 freeway, which carries truck traffic from the Port of Long Beach, over concerns that it would displace residents in low-income neighborhoods and worsen air pollution.[86]

- Washington's DOT regulations require an EIS to be completed prior to the approval of the location or design of a project.[87] Those regulations also require all environmental, social, and economic effects be considered in all its actions.[88]

- In Virginia, transportation planners were considering whether to alleviate traffic jams on I-95 between Fredericksburg and Washington by adding two extra lanes at a cost of $12.5 billion. Ultimately, understanding the first law of traffic congestion, that adding lane capacity results in induced demand and does little if anything to solve congestion, Virginia decided to instead spend $3.7 billion to expand commuter rail service.[89]

- Oregon, Massachusetts and Washington all have policies to create walkable, bikeable neighborhoods, well connected by affordable, frequent transit.[90]

Summary of the Required Actions

- Addressing climate change should become a critical, if not determinative, factor in all transportation policy and planning.

- NJDOT and NJTA must implement EO 274 by developing a state-wide climate action plan to reduce GHGs in the State's transportation sector, and to enable the State to achieve its 50 x 30 Goal.

- Any Highway Expansions must pass a climate impact test showing that the Project does not conflict with the 50 x 30 Goal.

- Before commencing any Highway Expansion Project, NJTA and NJDOT should prepare a cost-benefit analysis, which includes a traffic study, health and social costs, and alternatives to highway expansions.

- The $4.7 billion Turnpike expansion from Exits 14 through 14C should be halted until a climate action plan and a cost-benefit analysis are prepared for public review and comment.

- NJDOT should prepare a State-wide transportation plan for funding all transportation projects – new highways, road repair, public transportation, safe streets, bikeways, greenways, and walkways –that

prioritizes reducing GHG and fix-it-first projects over highway expansions, consistent with federal policy.

- The annual raids from New Jersey Transit's capital budget should end.
- NJDOT and NJTA must consider and prioritize environmental justice in all transportation planning decisions as required by Executive Order 23 and reject any projects that disproportionately harm Overburdened Communities.
- The NJTA Board should be reconstituted with representation from Overburdened Communities and with members having expertise and a background in climate or environmental justice issues. Senior staff should be similarly reconfigured.
- NJT should be barred from building a 24/7 gas fired, methane producing power plant in the Meadowlands.
- NJDOT and NJTA should provide for robust public input and review of its major projects, most importantly at the outset of the project and before millions of dollars are spent.

EmpowerNJ by its Steering Committee members John Reichman, BlueWaveNJ; Doug O'Malley, Environment New Jersey; David Pringle and Eric Benson, Clean Water Action; Matt Smith, Food & Water Watch; Tracy Carluccio, Delaware Riverkeeper Network; and Ken Dolsky, Don't Gas the Meadowlands Coalition.

For further information and discussion, contact John Reichman, john@johnreichmanlaw.com, 917.626.8025.

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28x

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Senator Smith and Members of the Environment & Energy Committee,

EmpowerNJ thanks you very much for the opportunity to testify today. We very much appreciate this committee and especially the chair's focus on tackling the existential threat of climate change.

My name is Ken Dolsky. I am a member of the EmpowerNJ steering committee and also the co-leader of the Don't Gas the Meadowlands Coalition. I will be joined today by Anjuli Ramos-Busot, Director of the New Jersey Chapter of the Sierra Club.

Empower NJ is a coalition of more than 135 environmental, civic, faith, and progressive organizations committed to: 1) the overwhelming scientific evidence that we must reduce global greenhouse gas emissions (GHGs) by at least 50% from 2010 levels by 2030 to avoid climate catastrophe; and 2) prohibiting major new fossil fuel expansion projects that are inconsistent with that goal, particularly in environmental justice communities.

The recent IPCC report stresses the fact that the window to limit warming to 1.5 degrees is rapidly closing, and that overshooting 1.5 degrees and planning to reduce warming later in the century is not an option because harms, such as positive feedback loops, cannot be undone. **Reducing GHGs in the limited time we have left is the issue.**

Our message today is that **NJ is going full speed in the opposite direction – we are increasing GHG emissions and neither the Legislature nor the Administration has had the political will or used the tools available to them to change this**. New Jersey's Energy Master Plan (EMP) and Global Warming Response Act (GWRA) have specific (although insufficient) goals but are really lists of suggestions and potential actions – not implementable plans. They require strong rules and regulations to back them up as well as human and financial resources and milestone objectives. NJDEP's related rulemaking, Protection Against Climate Threats (PACT) process is far too slow, is not meeting its own timelines and has yet to have any impact on GHG emissions. We have a State policy (Governor Murphy's Executive Order [EO] 274, to cut GHGs 50% by 2030 but nothing in the way of even a DEP, DOT, DCA, or BPU recommendation as to how we will do this let alone a real plan.

Not only have we **not made any significant reductions in GHGs** but we are **increasing emissions at an accelerating pace**. Our 2019 report predicted a **30%**[1] increase in GHGs based on 13 new fossil fuel projects. Our early April 2022 report, **attached here**, shows that six of those 13 projects, completed under this administration, have potentially already **INCREASED** GHGs by **19%** (an estimate which the DEP supported) and there are seven more projects in various stages of development that could increase GHGs by another **38%**, mostly in the next few years, **for a total increase of about 57%**.

In terms of volume, the State's policy to reduce GHGs 50% by 2030 requires a **60MMT cut**, yet we are on track to add **57MMT** to our total – which would, therefore, require a total reduction in **annual GHGs of 57MMT plus the original 60MMT for a total of 117MMT to make the 2030 target. That's far more than our TOTAL GHG emissions in 2019.** The incongruity of the State's actions versus its policies **demands immediate corrective action**.

[1] New Jersey's GHG inventory has varied slightly (both up and down) from year to year but the average over the past five years has been 100MMT (million metric tons) of CO2e. All GHG percentages in this paper are based on this value as our current inventory level.

30x

Now, if you are scratching your heads as to how 13 projects can increase total state GHG emissions by over 50%, so are we. We are confident in our estimating process leaving the only remaining explanation to be significant undercounting from the DEP's estimating process, something we intend to investigate.

However, the situation with pending new projects is not hopeless. Five[2] of these projects are unnecessary and would provide no benefit to NJ residents (and their rejection will not add to residents' costs or reduce energy availability). The other two (NJT TRANSITGRID and the PVSC power plant) can accomplish their goals with very high percentages of clean energy, but **require action on the part of the administration to make this happen**. Therefore, the good news is that we can largely avert this disaster **if we have the political will to do so.**

The largest of these projects is the Williams Regional Energy Access Expansion (REAE), which is meant to replace the unnecessary and recently defeated PennEast project. The REAE project will have 75% of the capacity of PennEast and alone will generate between 16.8MMT and 18MMT of GHGs from gas combustion. Williams is looking to start construction in 3Q22 for new and/or expanded compressor stations in West Deptford, Branchburg and Old Bridge. **We need to act now to stop this disaster.**

Another project worth mentioning because the governor has total control over it is the NJ TRANSIT power plant. NJT has published a Request For Proposal, which claims to be unbiased regarding energy technology, but is clearly favoring a gas plant. The RFP does not even ask for bids based on renewable energy, it only asks for a transition plan to get to carbon neutrality by 2050. At a recent NJT board meeting, several members publicly demonstrated their bias by declaring that renewable energy was not available or up to the task for this project, yet failed to provide any detail to support their claims. Our Coalition, having worked with a well-known expert on solar, has found otherwise. **Unless the Governor steps in and forces NJT to rewrite the RFP to remove the bias, we are going to have a new 140MW fracked gas power plant in the Meadowlands in 2028, two years before our 2030 deadline.**

Another project of no value to the residents of NJ is the proposed Gibbstown LNG export terminal project on the Delaware River. Its transportation infrastructure delivers nothing but peril for those who live along the LNG rail and truck routes or within the impact zone of the terminal and its enormous ships. The risk of catastrophe should there be a release of the highly flammable and potentially explosive LNG would be borne by NJ and Pennsylvania communities and the environment.

We also have to make it clear that five of these polluting projects would be sited in or near low income and/or communities of color: Gibbstown Liquified Natural Gas Export Terminal, NJ Turnpike Authority (NJTA) highway expansions, Keasbey gas plant, NJT's gas plant and the Passaic Valley Sewerage Commision (PVSC) gas plant -- violating at least the spirit of the new EJ law. **Let's use that law to stop these projects or force them to use truly clean energy.**

And speaking of clean energy, we also call on you to not allow the use of so-called Renewable Natural Gas (RNG) solutions to the GHG problem as some recent bills have proposed. At least two of these new projects are planning to start with natural gas and migrate by 2050 to RNG or hydrogen or other

[2] Williams Regional Energy Access Expansion, Gibbstown LNG, Tennessee Gas Pipeline Expansion, Woodbridge/Keasbey Energy Center, NJTA Highway Expansion

fuels. This will allow them to claim reduced GHG emissions through an accounting gimmick. RNG emissions are not included in GHG inventories because they are theoretically part of a closed loop cycle that will not increase carbon in the atmosphere. However, in practice there will be leakage, and there are questions, such as the out-of-state origin of landfill products and out-of-state sources of biogas, as to whether this is truly carbon-neutral in NJ while still emitting the same volume of GHGs and possibly even more toxic pollutants in EJ communities. There are many problems with RNGs:

- RNG relies on subsidies because it is more expensive than fracked gas. In order to sell higher priced gas it has to be greenwashed as being good for the environment, thus encouraging the public to pay more for RNG than natural gas. The combination of lowered RNG costs due to state subsidies and false claims have the great potential to increase the volume of gas sold in NJ.
- Not counting 'RNG' emissions in GHG inventories is an insidious backdoor to cutting GHGs because it does not reduce GHG levels in the atmosphere which we only get by using true renewable technologies like wind and solar and remediating natural carbon sinks like wetlands and forests to continue to sequester carbon.
- RNG produces the same or more hazardous air pollution as natural gas aka methane. For example, burning hydrogen produces up to six times the volume of NOx as burning gas.[3] NOx can cause serious health effects, including asthma and increased chance of respiratory infections; NOx is also a precursor to particulate matter and ozone, which harms many bodily systems and contributes to premature death.
- False climate solutions that perpetuate or exacerbate local pollution are incompatible with the principles of a just and equitable transition to a clean energy economy. True renewables like solar, wind, geothermal and clean energy storage are the solution to air pollution.
- Generating new sources of methane is only worsening climate change as some of it will leak into the atmosphere.
- New infrastructure will be necessary to capture/produce RNG. Once constructed it will drive providers to perpetuate not only RNG but the entire gas industry as RNG can only survive by adding gas to the existing volumes of fracked gas.
- RNG is not low carbon. It is every bit as bad for climate change as natural gas. It is only counted as a low carbon gas because it is considered to be a closed loop, which is dubious.
- The use of carbon oxides including waste carbon dioxide to produce methane supports the carbon capture argument. Carbon capture is a false solution. It gives the illusion that we can safely continue to use fossil fuels instead of transitioning to true renewables.
- Waste carbon dioxide requires new CO2 pipelines and other dirty, dangerous and expensive infrastructure that will only delay the transition to a truly clean energy economy.
- Increasing development of gas infrastructure locks in more gas as a fuel and makes it harder to transition to renewables. There is growing consensus that electrifying buildings and using electric appliances like heat pumps and induction stoves is the clearest path to tackling both air pollution and GHG emissions.

A recent report prepared for the New Jersey Board of Public Utilities entitled ANALYSIS OF NATURAL GAS CAPACITY TO SERVE NEW JERSEY FIRM CUSTOMERS[4] contains a section on pages 13 and 14, comparing non-pipeline alternatives (NPA) that increase supply such as renewable natural gas ("RNG"), green hydrogen, liquefied natural gas ("LNG"), with programs that reduce demand from the

[3] https://www.sierraclub.org/articles/2022/01/hydrogen-future-clean-energy-or-false-solution
[4]https://nj.gov/bpu/pdf/boardorders/2021/20211215/9B%20LEI%20Final%20Gas%20Capacity%20Report%2011%2005%202021%20Public%20Redacted.pdf

32x

customer-side of the meter and include energy efficiency ("EE") improvements, demand response ("DR") programs, building electrification, and innovative rate designs. The report shows that reducing energy demand and improving energy efficiency are far more effective than increasing supply such as RNG, LNG and Hydrogen. In particular, energy efficiency scored the highest of the NPAs, while green hydrogen and LNG/CNG scored the lowest. Overall, every demand-side NPA scored higher than the supply-side NPAs. Below is a chart from that report demonstrating these findings.

Figure 2. NPAs scored against BPU goals

	Non-pipe mitigation options							
Criteria	Energy efficiency	Voluntary DR program	Direct load control DR	Building electrification	RNG	Green hydrogen	LNG/CNG trucking	Advanced leak detection
Improve reliability/resilience	Yes	Yes	Yes	Somewhat*	Yes	Yes	Yes	Yes
Under the Board's control	Yes	Yes	Yes	Yes	No	No	No	Somewhat
Build upon current capabilities	Yes	Yes	Yes	Somewhat	No	No	No	Somewhat
Consistent with state climate targets	Yes	Somewhat**	Somewhat **	Yes	Yes	Yes	No	Somewhat
Cost effective	*TBD*							
Enable social equity	Yes	n/a	n/a	Yes	n/a	n/a	n/a	n/a
Technically feasible	Yes	Yes	Yes	Yes	Somewhat	No	Somewhat	Somewhat
Suitable lead time	Yes	Yes	Yes	No	Somewhat	No	Somewhat	Yes
Overall score	7	5.5	5.5	5	3	2	2	4

Bottom line - it is far more effective to prevent production of methane than to try to find more ways to produce it. A premium should be placed on mitigation strategies that permanently avoid the generation of methane emissions through more sustainable practices. The legislature must reject the proposal to subsidize these false solutions. Instead of showing interest in gas utility company's efforts to find sources of RNG, we suggest that legislators encourage them to transition to becoming leading suppliers of heat pumps and other electric appliances so they can profit from the high margin service business.

I have spent some time discussing the energy production sector. I also want to briefly talk about the transportation and building sectors.

We could spend the entire hearing talking about reducing GHG emissions from the transportation sector, by far the largest source of GHGs in the State. DOT and the Turnpike Authority are doing little or nothing to address this issue, despite being required to do so by EO 274. We have presented the committee with proposals supported by a detailed fact sheet on how to turn this situation around and make other needed reforms in the transportation sector.

Let me highlight one of our proposals.

The new buzzword in Trenton is **affordability**.

The Senate and this Committee can immediately make substantial progress on addressing all these issues, including **affordability**, with one simple action: **stop spending billions of dollars, that's billions with a 'B,' on unneeded highway expansion projects.**

Take, for example, the Turnpike expansion project from exits 14 to 14C. That expansion will tear through the heart of Jersey City over the opposition of the mayor and the people of Jersey City.

33x

This project makes no sense under any metric, starting with its cost. When first proposed in 2020, the cost was to be $4.3 billion. It has now ballooned to $4.7 billion and only preliminary design work has started.

The project will be an environmental disaster producing more greenhouse gases and more pollution. Our report conservatively estimates that the current plan to widen 124 miles of Turnpike and Parkway will increase GHGs by 1.4MMTs annually.

The project will not even accomplish its goal of reducing traffic congestion. It is a fundamental rule of highway planning that expanding highways in urban areas results in induced demand where the highways quickly fill to their increased capacity leaving traffic congestion the same as it was before. That is certain to be the case in Jersey City where there is an immovable bottleneck at the end of the Turnpike, the Holland Tunnel.

This project and the others like it are lose, lose, lose propositions. The DOT commissioner and the entire, insular Turnpike Authority Board operate without oversight as if we are still in the 1950s when the climate crisis did not exist and before we learned, through one example after another, that highway expansions are enormously costly to build and counterproductive. Our transportation dollars have to be put to better use.

The Senate and this committee should stop these projects and use their oversight powers to have the DOT commissioner testify about not only the highway projects, but more generally what DOT and the Turnpike Authority are doing, or more accurately, are not doing to reduce GHGs. We have no time to waste.

Let me wrap up with a few words about the building sector. The building sector's GHG emissions (25.4 MMT,[5] 26% of total NJ emissions) are the second largest segment in the state and reducing them is of critical importance in achieving the 50x30 goal. Given the highly disaggregated nature of the segment (3.6M distinct housing units and 800,000 separately-owned businesses) and the significant capital costs of replacing existing fossil fuel appliances, it will be one of the most difficult to address. Therefore, time is of the essence, and efforts to reduce GHGs in this segment must be put in place immediately. **We need a building electrification roadmap this year**, not sometime before 2030 as called for by the GWRA 2020 plan.

Unfortunately, unlike the specific goals for EVs, solar, storage, offshore wind (OSW) and energy efficiency, NJ has no specific goals for building electrification. Instead we seem to be paralyzed by the disinformation campaign from the gas industry. This sector can be electrified with residents' support, if we try. Cold climate heat pumps work well even at minus 15 degrees Fahrenheit. Electrification has significant long term financial and health benefits for residents while creating many new jobs. NJ needs to set specific building electrification goals and provide the support needed for achieving them including appropriate incentives to purchase electric appliances, remove the substantial incentives for

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[5] New Jersey Greenhouse Gas Inventory Mid-Cycle Update Report, February 2021, 2019 projected figures, pp. 5-6; https://www.nj.gov › MCU GHG Inventory_2021

34x

gas appliances, change building codes for new developments and provide effective and highly visible consumer support programs.

In conclusion, all of the State's accomplishments on climate change are threatened by these new fossil fuel infrastructure projects. If these potential increases take place it is very difficult to see a path to 50x30. However, if we accomplish nothing else we must address the threats from these projects on EJ and overburdened communities. By doing so we will save lives while at the same time reducing existing and potential increases in GHGs.

My colleague, Anjuli Ramos will speak more about actions the Legislature can take to dig us out of this hole.

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Thank you, Ken. Mr. Chairman Senator Smith and Members of the Senate Environment & Energy Committee, thank you for the opportunity to testify today and for all the work you do to protect our environment. My name is Anjuli Ramos Busot. I am the NJ State Director of the Sierra Club and today I am speaking on behalf of the Empower Coalition, to which I am a member, as well as on behalf of the NJ Sierra Club.

Affordability, as my colleague previously mentioned, is the new buzzword in town, and we understand the reasons why. We are going through a period of record inflation, our markets have all been impacted, our supply chain is suffering, and the price for gas at the pump is record high. Of course, I cannot miss the opportunity to say, record high prices at the pump while oil companies are reporting record-breaking profits by utilizing the Russian invasion of Ukraine as their excuse. This is all to say, yes we understand why the focus on affordability. We are all going through it.

I believe we all here agree that the ratepayer should not be impacted by the cost of our inability to be energy independent, and of most importance, should not be impacted by the urgent and necessary energy transition from fossil fuels to renewables. This is why we need your help.

The longer we allow for the construction of new fossil fuel infrastructure and for the modernization of the existing one, the longer we will be hooked and dependent on a volatile and geopolitical fossil fuels market. I am not going to preach to the choir here, because I am well aware that you all understand the environmental and health impacts of Climate Change. We see it with our own eyes. However, what I will mention is the economic impact of climate change to our State. The National Oceanic and Atmospheric Administration otherwise known as NOAA recently released a report on Billion-Dollar Weather and Climate Disaster Events. Last year, NJ was hit by 4 different "billion dollar weather and climate disaster" events, and by a total of 71 "severe weather" events. This data indicates that last year NJ's total cost from these events was $10 billion, with more than $5 billion in property damage. Last year was the most expensive year in terms of weather and climate disasters after 2012, the year we got hit by

Superstorm Sandy. How does this fit under affordability? New Jersey is losing a lot of money, and the data shows that the cost of inaction is higher than the cost of actually investing in climate change mitigation as well as being proactive about it.

Thus, when I ask for your help, I specifically ask, for example, to not allow for the usage, let alone the construction of new infrastructure for the incorrectly marketed "renewable natural gas" or RNG, especially while subsidized by the ratepayer. My colleague Ken spoke briefly about this, however, I would like to go into detail because the greenwashing of dirty fuels like RNG is one of our most significant challenges. Members of the committee, as introduced by the Legislature this past session, RNG can be one of any of the following options: (1) biogas upgraded to pipeline quality, which is still the burning of a fuel made out of carbon and still contributes to significant leakage of methane to the atmosphere; (2) hydrogen gas derived from Class I or Class II renewable energy which I will further explain why it is not a good use of our resources; and (3) methane gas, which again, is just simply the burning of more carbon.

RNG is highly expensive to make because it depends on the supply of biological sources, one that is limited. Costs can range from 4 to 17 times higher than natural gas. Investing more money on constructing and prolonging the so-called transition to renewables or low carbon energy no longer passes as a smart or efficient idea, it is a waste of resources that will lock us into the burning of carbon beyond 2050. Time that we do not have.

Now, going back to hydrogen. As a chemist, I can inform you that this type of energy source is a technology we can truly say that, as of today, it is not ready to be scaled up in a clean way. In order for us to be able to use hydrogen produced in a clean way, it needs to be generated in an electrochemical or fuel cell environment, which does not include any form of carbon. Unfortunately, this technology is not yet scalable to our energy demand levels, and, as of today, it has a high cost. If not done this way, hydrogen is otherwise generated with the usage of biogas, which ends up producing carbon monoxide and carbon dioxide.

Additionally, if we combust and/or mix hydrogen with RNG or natural gas in order to be able to use our existing pipeline infrastructure and reduce usage of gas, we end up generating the deadly and potent climate co-pollutant black carbon and up to six times more emissions of nitrous oxides or NOx than if we were just simply burning natural gas or RNG. It is also worth mentioning that there are numerous studies in the scientific literature about the difficulties of controlling NOx emissions from hydrogen combustion in various industrial applications.

Emitting NOx and the creation of ground-level ozone which we know as smog is something that we are all well acquainted with and we understand the health impacts and the unnecessary toll it takes on public health, especially our communities overburdened with pollution. However, it is especially important to mention that the entire state of NJ is currently under non-attainment by the U.S. EPA for ground-level ozone, an extremely toxic air pollutant, which is produced in the atmosphere at ground level by high levels of NOx and Volatile Organic Compounds or VOCs, yet another co-pollutant from fossil fuel combustion regardless of the source.

The key takeaway from this is that there is no fossil fuel transition solution to reaching renewable energy, and these "solutions" are costly, a waste of resources, and will continue to harm our health and exacerbate the impacts of climate change. The solution is to simply invest more in renewable energy, while incentivising its incorporation and usage and protecting the ratepayer from more economic impacts of climate change.

Members of the committee, I would like to explain further why we need your help. As NJDEP Commissioner Shawn LaTourette explained to you when he previously testified to this committee on the impacts of climate change to NJ, time is of the essence, and we need to urgently do more. However, the Administration's progress on implementing the Governor's vision has been painfully slow. To be specific, the revision of the Energy Master Plan took longer than expected which then resulted in a further delay in rulemaking by the DEP that took the Governor's entire first term. All PACT or Protecting Against Climate Threats rulemaking deadlines have been missed and thus far only one has been adopted. The goal was to adopt

these rules by January 2022, and a huge subset of rules under PACT that focus on resilient environment and landscapes are still at least months away from even being proposed. Additionally, we have yet to see the establishment of interim benchmarks under the Global Warming Response Act and the use of a 20-year timeframe for all greenhouse gas computations by the DEP as enacted into law by the Legislature and Gov. Murphy in July 2019 and January 2020. The 20-year timeframe is of special importance because not all greenhouse gases have the same global warming potential as carbon dioxide. To be specific, those short-lived climate pollutants like methane and black carbon, which are present in the atmosphere for a shorter period of time but have a significantly higher warming potential than carbon dioxide.

All of these delays speak volume to the fact that the NJDEP is understaffed and underfunded, something that you can all help with during this Budget season. NJDEP has had flat funding since 2005, not a cut, but also not an increase. When considering inflation, this results in a 40% cut in funds and a 30% cut in staff. Personally, prior to joining the NJ Sierra Club, I used to work for the NJDEP to which I can attest to the good will and the hard work the staff puts forward in order to protect our environment and public health. Good people trying to accomplish a lot with not a lot of resources. More funding is essential.

In regards to the actual rules that have been proposed and undergone public comment, one of the most important rules which targets the electric generating sector does not truly contribute to significant reductions in greenhouse gas emissions. It doesn't even acknowledge, let alone is informed, by the Governor's Executive Order 274 despite being drafted concurrently. This proposed rule would only contribute a 4% reduction in greenhouse gas emissions and this is only after full implementation by 2035. This is in direct contrast to Governor Murphy's climate goals and Executive Order 274, which states that by 2030, we are supposed to achieve a reduction of 50% of greenhouse gas emissions. Yes, the proposed rule only considers the electric generation sector, thus is it not expected for this rule alone to reduce all 50% of emissions or even close to that. However, the most up-to-date data reported by the DEP shows that the electric generation sector is the third highest contributing sector in the State and it

comprises 20% of all greenhouse gas emissions. What we do expect is that this proposed reduction at least comes close to 20%. The proposed rule is packed with loopholes that bypass many greenhouse gas emitting electric generating sources, the most egregious ones are those sources that burn 50% or less of fossil fuels and the sources that contribute less than 10% its annual gross electric output to the grid - like all back up generators or self-powered facilities in the State as well as co-generation units and incinerators. All those sources would be exempted. There is so much more than these proposed rules can cover and enforce and a stronger political will from the Murphy Administration as well as the Legislature can get this done.

In order to holistically reduce greenhouse gases, there needs to be broad government action. As previously mentioned by my colleague Ken Dolsky, we need more concrete action from the BPU, DCA, DOT, EDA, NJ Transit and any government agency that may play a role in reducing emissions, developing the market and creating clean jobs. We ask ourselves, where are the good and efficient climate plans and actions by these agencies? The BPU currently refuses to include a cost analysis that includes the true social, health and climate costs of greenhouse gases in their "Ratepayer Impact Study" of clean energy policies presented in the most recent Energy Master Plan, let alone frame the analysis around them. Additionally, the DCA and DOT for example have not even developed policies to reduce greenhouse gas emissions from the transportation and building sectors as required by Executive Orders 28 and 274. And the Senate hasn't made things easier with its passage a few months ago of a bill that would undermine DCA's consideration of electrifying buildings and plays into the extremely misleading campaign of the Fuel Merchants concerning affordability, mandates and the climate emergency we face .

Moving forward, with this rate of implementation of regulations and the potential increase in greenhouse gas emissions as described by my colleague, it is impossible to see a clear path to achieve our climate goal of 50% reduction by 2030. For these reasons, we call on the Administration and Legislature, as well as individual legislators to do everything in your power: 1) to prevent the current seven pending fossil fuel projects from being approved and built; 2) to direct all State agencies, especially NJDEP, DCA, BPU, NJTA and DOT, to urgently provide written

executable roadmaps and rules by then end of 2022 to implement Executive Order 274 and achieve our existential goal of reducing greenhouse gases by 50% by 2030, 3) to oppose the usage and the creation of new infrastructure for renewable natural gas or RNG, 4) to help with the cost-effective electrification of our buildings, 5) to give the DEP the funding to do the job and 6) to empower all the markets, businesses and individuals through this energy transition. We also urge the Legislature to pass budget resolutions that restore the raids of more than $83 million from the NJ Clean Energy Fund so we can more fully fund clean energy and energy efficiency programs.

In conclusion, we ask the Legislature to be proactive instead of reactive. Don't leave New Jersey behind. Just 2 weeks ago New York State adopted a budget that: 1) includes a $4.2 billion environmental bond act to protect against climate change; 2) requires all new school bus purchases be zero-emissions by 2027 and all school buses on the road be zero-emissions by 2035; and 3) funds electrifying an additional 50,000 homes.

Climate change, regardless of current political and economic situations, is society's true existential threat. Action is required now. At this point, we are and will continue to suffer from the imminent and irreversible impacts of climate change. There is no more time for planning – we are already so behind. We ask the Legislature to recognize the urgency to mitigate the impacts and protect the public. So many are already suffering and dying due to overburdening pollution, and by floods, drought, fires, tornadoes and tropical systems. The list of environmental, health and economic benefits of fully transitioning into true renewable energy is endless. Promote climate mitigation and renewable energy bills and stop those that do not push NJ forward.

And we understand how difficult this is going to be for legislators. It is going to require heroic action to stop new fossil fuel projects, shut down existing sources and develop programs to replace them with renewable energy ones. Some of these actions may not be popular in the near term and residents may not see the benefits until some of you are gone from office. But this is reality.

Factoring all the social costs of carbon, accelerating the transition to clean renewables, not delaying it, not the business as usual fossil fuel approach. That's how you make New Jersey more affordable. Again, thank you for the opportunity to speak.

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April 20, 2022

Dear Senate Environment & Energy Committee:

On behalf of the New Jersey Business and Industry Association, the largest association representing businesses in the Garden State, I am submitting this letter to the Senate Environment and Energy Committee to help it in its task of developing energy and other policies to address our climate change concerns.

While we appreciate the fact that the Senate Environment and Energy Committee has taken on the task of hearing testimony to mitigate the impacts of climate change, we are discouraged that no representative from the business community has been asked to testify.

The New Jersey Business & Industry Association has a keen interest in energy policy in this state and our efforts to mitigate climate change and respond to its effects. For those reasons, we are providing you with our thoughts and policy recommendations. We would welcome the opportunity to testify before the committee and further explore these policy options.

As will be explained in this memo, we recommend that New Jersey's energy policy be founded on six foundational principles:

- Reducing carbon emissions as much and as quickly as practicable based on the best interests of the people living in this state and our economic needs;
- Ensuring that energy is both affordable and reliable;
- Technological advances should be pursued as a key component of the state Energy Master Plan;
- No major changes in energy sources should be mandated until affordable and reliable alternatives are readily available to replace those sources, and the infrastructure is in place or planned to be in place when those sources are activated;
- We should continue to pursue established clean energy options, including wind, solar, and nuclear power; and
- Multiple energy options should be available to ensure the continuous availability of energy in varied forms, in sufficient quantities, and at affordable prices.

In addition, beyond efforts to mitigate climate change by reducing carbon emissions, we recognize that extreme weather events have and always will be part of living in a coastal state. Therefore, we should emphasize efforts through building standards, enhanced infrastructure, and other resiliency measures. This memo will not detail these measures, but we favor the use of sound science to predict future climate impacts and the protection of our citizens and infrastructure rather than a general policy of retreat.

As background, NJBIA has an interest in ensuring that New Jersey's economy is robust and competitive. This holds true for our energy sector. Our members are the consumers of energy, from the largest manufacturers to Main Street businesses. Our members are also impacted by

the capital and other physical costs associated with a change in energy policy, from building retrofits to the purchase of electric or zero-emission vehicles, to implementing new ways of doing business.

But our members also include those companies who supply energy. We represent solar developers, wind, and transmission companies, electric and gas public utilities, inventors, and developers of new technologies, as well as many of the trade unions who support these industries.

I mention the breadth of our membership and their various interests to highlight that our position is not just to keep to the status quo or to say "no" to needed change. It is to ensure that energy and climate policy are reflective of the range of these interests and is based on sound science and economic realities, not merely ideological soundbites and calls for drastic action. It is because we represent all sides of the energy issue that we are keenly focused on what the science actually says, what the risks are and are not, and the impacts of the decisions we make.

We also want to identify that while we are aware of the statutory obligation to reduce carbon emissions by 80% from 2006 levels by 2050, and that activists and others are calling for even more rapid decarbonization, our policy recommendations are not rooted in artificial deadlines for actions. Rather, they are based on what is in the best overall interests of the citizens of New Jersey. We fully agree on the need to deeply decarbonize our economy and to achieve a net zero, or lower, carbon policy but we believe the science shows we do not have to rush to take actions that may preclude the use of more effective technologies. We are happy to discuss the science and risks in as much detail as you want.

It is in light of the above that we offer the following policy recommendations:

- Decarbonization – Given the impact of greenhouse gases on the climate, it is imperative that we reduce the release of carbon dioxide and other greenhouse gases from our energy system. However, we also recognize that energy from carbon sources has been the foundation of our energy system, our economy, and our standard of living and it represents over 100 years of capital investment and technological development. Therefore, any policy changes to eliminate carbon sources of energy should recognize the impacts of these policy changes and how they would affect people living in this state, as well as the ability to do business. **No decarbonization policy should be put in place until a full economic impact assessment, including a ratepayer analysis, is conducted.** Our policies should emphasize what we can readily achieve now in an affordable and reliable manner and delay other efforts until the technology or other cost-containment measures allow for such adoption. We reject the use of a "social cost of carbon" cost-benefit analysis as not rooted in firm science and ignoring the true impacts of various carbon reduction policies.
- Affordability and Reliability - The Energy Master Plan should be based on two essential policies. Energy, in all its applications (*e.g.,* transportation, building and industrial) must be both affordable and reliable. Affordability means that the low-income or average resident, as well as business, can afford to use the energy it needs considering the other costs of living and doing business in New Jersey. While climate advocates, and the Energy Master Plan, will often use the term "least cost," this does not denote affordability as "least cost" is in relation to other considered options. It does not mean a person or business can afford it. Reliability is essential for the functioning of an energy system and, thus, our economy and quality of life.

Both affordability and reliability have been central tenets of New Jersey's energy policies in the past, but have recently deprioritized in favor or decarbonization policies.

- Emphasis on Technology – While intermittent sources of energy need to be part of our energy future, renewables alone cannot replace carbon sources of fuel and still meet the goals of affordability and reliability. We will need new technologies, some of which may not even be known, in order to meet our net zero emissions goals. Technologies such as hydrogen, next generation nuclear, RNG, wave energy, fusion, geothermal, microgrids, and others should be fully vetted and discussed in our Energy Master Plan. If any of these technologies will be realistically available in the relatively near future, we should not adopt policies that force the adoption of other existing, less effective, technologies that will preclude innovation.
- Sound Planning – Current energy policy and practice in New Jersey is pushing decarbonization, primarily through an emphasis on intermittent sources of electricity generation and through the electrification of our building and transportation sectors. Putting aside whether these policies can be achieved in a manner that meets our affordability and reliability goals, the implementation of these policy initiatives have not considered the need of increased electrical generation and the transmission systems necessary to support them. We have been putting the cart before the horse. We need to ensure that, before we adopt electrification policies, we have plans for the in-state generation of those sources, or that out-of-state generation is both realistic and cleaner (the PJM grid currently emits more carbon than New Jersey sources). We must also ensure that the grid is able to handle potentially dispersed and significantly increased generation sources. We also note that academic studies, such as Princeton University's Net-Zero America Project, state that we need to continue to use natural gas generation through 2040 and then rely on our gas infrastructure to transport cleaner sources of energy.
- Established Clean Energy Sources – New Jersey already has substantial sources of clean energy, and more is rapidly coming on board. Our three remaining nuclear power plants provide roughly 40 of electric generation in the state. Our solar industry supplies another 6% and is growing. Our offshore wind industry has already been approved for 3700 MW with a total goal of 7500 MW. Numerous bids have already been submitted for the transmission projects to build out the offshore wind generation. Together, the continuation and expansion of these sources of power, represent a substantial sum of our total electricity energy needs although we recognize that those needs may significantly grow in the future depending on state and federal electrification policies. These industries should be supported, eliminating unnecessary regulatory burdens, and establishing process for their development in a cost and time-effective manner. However, these industries should be maintained and grown within the parameters of our other energy policies.
- Energy Security – It has been a tenet of energy policy, until recently, that an energy system provides for a range of energy options and sources so that consumers are protected from sharp price increases and disruption should one energy market be disrupted. We are seeing this play out in real time in Europe, which stopped fracking for natural gas and began to close nuclear power plants only to become dependent on natural gas from Russia. New Jersey's energy consumption policies should embrace an "all of the above" approach to protect against market and other potential disruptions. As a practical matter, intermittent sources of energy production require stable sources of energy that can be switched on an as-needed

basis. While batteries may provide short term back-up power, at a high cost, there is no belief that batteries can be a longer-term substitute for reliable base power generation. Thus, we should not be so swift to decommission our natural gas electric generation plants or abandon our gas pipeline infrastructure.

We welcome the opportunity to present this information to the committee as it continues its investigation into climate mitigation policies. Converting our entire energy system in a matter of decades is complex, costly, and uncertain. So are the issues surrounding climate change. The complexity and the concerns necessitate a comprehensive analysis of energy systems and a careful and measured approach. But this conversion is necessary, the only question is how and over what period of time. We look forward to engaging the committee in this discussion.

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